

UNITED STATES OF AMERICA
FEDERAL COMMUNICATIONS COMMISSION
MODIFIED

STANDARD BROADCAST STATION LICENSE

File No.: BS-5037

Call Sign: K M T X

Subject to the provisions of the Communications Act of 1934, subsequent Acts, and Treaties, and Commission Rules made thereunder, and further subject to conditions set forth in this license, ^{1/}the LICENSEE

CAPITAL INVESTMENTS

is hereby authorized to use and operate the radio transmitting apparatus hereinafter described for the purpose of broadcasting for the term ending 3 a.m. Local Time **APRIL 1, 1980**

The licensee shall use and operate said apparatus only in accordance with the following terms:

1. On a frequency of **950** kHz.
2. With nominal power of **5 kilo** watts nighttime and **5 kilo** watts daytime,
with antenna input power of **5.4 kilo** watts --- directional

Common Point	current	10.4	amperes
Common Point	resistance	50	ohms,

antenna nighttime
and antenna input power of **5 kilo** watts non directional

Antenna	current	10.21	amperes
Antenna	resistance	48	ohms

antenna daytime

3. Hours of operation: **Unlimited Time.**

Average hours of sunrise and sunset:

Jan. 8:15 am to 5:00 pm; Feb. 7:30 am to 5:45 pm;
Mar. 6:45 am to 6:30 pm; Apr. 5:45 am to 7:15 pm;
May 5:00 am to 8:00 pm; June 4:30 am to 8:30 pm;
July 4:45 am to 8:15 pm; Aug. 5:30 am to 7:45 pm;
Sep. 6:00 am to 6:45 pm; Oct. 6:45 am to 5:45 pm;
Nov. 7:30 am to 5:00 pm; Dec. 8:00 am to 4:45 pm;

4. ~~With the station located at:~~ **Mountain Standard Time (Non-Advanced).**

Helena, Montana

5. With the main studio located at: **227 W. Lyndale Street, Helena, Montana**

6. Remote control point: **-- 227 W. Lyndale Street, Helena, Montana**

7. Transmitter location:

North Latitude:	46° 40' 28"
On U.S. Highway 91, Approx. 4 mi. N. of Helena, Montana	West Longitude: 112° 01' 05"

8. Obstruction marking specifications in accordance with the following paragraphs of FCC Form 715: **1, 3, 11 & 21.**

9. Transmitter(s): **HARRIS, MW-5**

10. Conditions: **--**

The Commission reserves the right during said license period of terminating this license or making effective any changes or modification of this license which may be necessary to comply with any decision of the Commission rendered as a result of any hearing held under the rules of the Commission prior to the commencement of this license period or any decision rendered as a result of any such hearing which has been designated but not held, prior to the commencement of this license period.

This license is issued on the licensee's representation that the statements contained in licensee's application are true and that the undertakings therein contained so far as they are consistent herewith, will be carried out in good faith. The licensee shall, during the term of this license, render such broadcasting service as will serve public interest, convenience, or necessity to the full extent of the privileges herein conferred.

This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequency designated in the license beyond the term hereof, nor in any other manner than authorized herein. Neither the license nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This license is subject to the right of use or control by the Government of the United States conferred by Section 606 of the Communications Act of 1934.

^{1/}This license consists of this page and pages **2 & 3.**

FEDERAL
COMMUNICATIONS
COMMISSION



File No.: BS-5037

Call Sign: K M T X

Date: 7-11-78

1. DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

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No. and Type of Elements: Four (4) guyed, series-excited, steel radiators of uniform cross-section. Theoretical RMS: 407.5 mV/m; Standard RMS 428.2 mV/m. Theoretical efficiency 190 mV/m/kW.

Height above Insulators: 260' (90.4°)

Overall Height: 263'

Spacing and Orientation: The towers are arranged in the form of a parallelogram with the long sides spaced 331' (115°) on lines bearing 79° true, and the short sides are spaced 250' (87°) on lines bearing 112° true.

Non-Directional Antenna: NW(#1) with other towers detuned.

Ground System consists of 120, equally spaced, buried copper radials about the base of each tower 260' in length, except where intersecting radials are shortened and bonded to transverse copper strap between adjacent towers. In addition, a 40' square ground screen is located at the base of each tower.

2. THEORETICAL SPECIFICATIONS

	Tower	NW(#1)	NE(#2)	SE(#3)	SW(#4)
Phasing:	Night	0°	-102.3°	27.1°	72.5°
Field Ratio:	Night	1.0	1.077	0.983	0.826

3. OPERATING SPECIFICATIONS

		NW(#1)	NE(#2)	SE(#3)	SW(#4)
Phase Indication*:	Night	-25.5°	-130.2°	0°	38°

		NW(#1)	NE(#2)	SE(#3)	SW(#4)
Antenna Base Current Ratio:	Night	1.006	0.915	1.00	0.791

		NW(#1)	NE(#2)	SE(#3)	SW(#4)
Antenna Monitor Sample Current Ratio:	Night	0.994	0.911	1.00	0.798

*As indicated by Potomac Instrument AM-19(204) antenna monitor

Section 73.114(A)(8) of the Rules and any requirement for weekly monitoring point readings are WAIVED during proper operation of approved sampling system: Provided, monitoring points readings are made at least once every thirty days.

Field measuring equipment shall be available at all times and the field intensity at each of the monitoring points shall be measured at least once every seven days and an appropriate record kept of all measurements so made.

DIRECTION OF AND FIELD INTENSITY AT MONITORING POINTS:

Direction of 84.5° true North. From transmitter proceed to U. S. Hwy. 19. Turn left and proceed 0.9 miles to intersection with Sierra Road, E. Turn left and proceed 4.6 miles along Sierra Road, E. and Floweree Drive to intersection with York Road. Turn left on York Road and proceed 1.2 miles to intersection with Helberg Drive. Turn left and proceed 2.05 miles to curve right (E). Follow right curve and proceed 0.25 miles to dirt road. Turn left and proceed 0.78 miles through gate to monitor point. Monitor point is in trail 10 paces west of green gate to corral. Distance from antenna 3.6 miles. The field intensity measured at this point should not exceed 60 mV/m.

Direction of 141° true North. From 84.5° monitor point return to intersection of York Road and Floweree Drive. Turn right and proceed along Floweree Drive and Sierra Road for 3.7 miles to large tree to south and orange identification mark on south shoulder. Monitoring point is on south shoulder at orange mark. Distance from antenna 1.25 miles. The field intensity measured at this point should not exceed 22 mV/m.

Direction of 188.5° true North. From 141° monitor point continue west on Sierra Road E. to intersection with U. S. Hwy. 19. Continue across Hwy. 19 for 0.05 miles to monitor point. Monitor point is on south shoulder at orange identification mark. Distance from antenna 1.02 miles. The field intensity measured at this point should not exceed 346 mV/m.

Direction of 239° true North. From 188.5° monitor point continue west on Sierra Road for 1.3 miles to intersection with Green Meadow Road. Turn right and proceed 0.1 miles to monitor point. Monitor point is on west shoulder at orange identification marker. Distance from antenna 1.7 miles. The field intensity measured at this point should not exceed 44 mV/m.

Direction of 283.5° true North. From 239° monitor point continue north for 1.3 miles to monitor point. Monitor point is on east shoulder at orange identification marker. Distance from antenna 1.63 miles. The field intensity measured at this point should not exceed 18.5 mV/m.

OBSTRUCTION MARKING AND LIGHTING SPECIFICATIONS FOR ANTENNA STRUCTURES

It is to be expressly understood that the issuance of these specifications is in no way to be considered as precluding additional or modified marking or lighting as may hereafter be required under the provisions of Section 303(q) of the Communications Act of 1934, as amended.

PAINTING

1 Antenna structures shall be painted throughout their height with alternate bands of aviation surface orange and white, terminating with aviation surface orange bands at both top and bottom. The width of the bands shall be equal and approximately one-seventh the height of the structure, provided however, that the bands shall not be more than 100 feet nor less than 1½ feet in width. All towers shall be cleaned or repainted as often as necessary to maintain good visibility.

TOP LIGHTING

2 There shall be installed at the top of the tower at least two 116- or 125-watt lamps (A21/TS) enclosed in aviation red obstruction light globes. The two lights shall burn simultaneously from sunset to sunrise and shall be positioned so as to insure unobstructed visibility of at least one of the lights from aircraft at any normal angle of approach. A light sensitive control device or an astronomic dial clock and time switch may be used to control the obstruction lighting in lieu of manual control. When a light sensitive device is used it should be adjusted so that the lights will be turned on at a north sky light intensity level of about thirty-five foot candles and turned off at a north sky light intensity level of about fifty-eight foot candles.

3 There shall be installed at the top of the structure one 300 m/m electric code beacon equipped with two 620- or 700-watt lamps (PS-40, Code Beacon type), both lamps to burn simultaneously, and equipped with aviation red color filters. Where a rod or other construction of not more than 20 feet in height and incapable of supporting this beacon is mounted on top of the structure and it is determined that this additional construction does not permit unobstructed visibility of the code beacon from aircraft at any normal angle of approach, there shall be installed two such beacons positioned so as to insure unobstructed visibility of at least one of the beacons from aircraft at any normal angle of approach. The beacons shall be equipped with a flashing mechanism producing not more than 40 flashes per minute nor less than 12 flashes per minute with a period of darkness equal to approximately one-half of the luminous period.

INTERMEDIATE LIGHTING (BEACONS)

4 At approximately one-half of the overall height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event this beacon cannot be installed in a manner to insure unobstructed visibility of it from aircraft at any normal angle of approach, there shall be installed two such beacons. Each beacon shall be mounted on the outside of the tower at the prescribed height.

5 At approximately two-fifths of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event this beacon cannot be installed in a manner to insure unobstructed visibility of it from aircraft at any normal angle of approach, there shall be installed two such beacons. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

6 On levels at approximately two-thirds and one-third of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

7 On levels at approximately four-sevenths and two-sevenths of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these bea-

cons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

8 On levels at approximately three-fourths, one-half and one-fourth of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of the beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

9 On levels at approximately two-thirds, four-ninths and two-ninths of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

10 On levels at approximately four-fifths, three-fifths, two-fifths and one-fifth of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be

THIS FORM IS A PART OF AND SHALL BE ATTACHED TO THE CURRENT INSTRUMENT OF AUTHORIZATION

(All previous editions should be destroyed.)

FCC Form 715
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installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

10.1 On levels at approximately eight-elevenths, six-elevenths, four-elevenths and two elevenths of the overall height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

10.2 On levels at approximately five-sixths, two-thirds, one-half, one-third and one-sixth of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

10.3 On levels at approximately ten-thirteenths, eight-thirteenths, six thirteenths, four-thirteenths and two-thirteenths of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

10.4 On levels at approximately six-sevenths, five-sevenths, four-sevenths, three-sevenths two-sevenths and one-seventh of the over-all height of the tower one similar flashing 300 m/m electric code beacon shall be installed in such position within the tower proper that the structural members will not impair the visibility of this beacon from aircraft at any normal angle of approach. In the event these beacons cannot be installed in a manner to insure unobstructed visibility of the beacons from aircraft at any normal angle of approach, there shall

be installed two such beacons at each level. Each beacon shall be mounted on the outside of diagonally opposite corners or opposite sides of the tower at the prescribed height.

(SIDE LIGHTS)

⑪ At the approximate mid point of the over-all height of the tower there shall be installed at least two 116- or 125-watt lamps (A21/TS) enclosed in aviation red obstruction light globes. Each light shall be mounted so as to insure unobstructed visibility of at least one light at each level from aircraft at any normal angle of approach.

12 On levels at approximately two-thirds and one-third of the over-all height of the tower, there shall be installed at least two 116- or 125-watt lamps (A21/TS) enclosed in aviation red obstruction light globes. Each light shall be mounted so as to insure unobstructed visibility of at least one light at each level from aircraft at any normal angle of approach.

13 On levels at approximately three-fourths and one-fourth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in aviation red obstruction light globe shall be installed on each outside corner of the structure.

14 On levels at approximately four-fifths, three-fifths and one-fifth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

15 On levels at approximately five-sixths, one-half, and one-sixth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of structure.

16 On levels at approximately six-sevenths, five-sevenths, three-sevenths and one-seventh of the over-all height of the tower at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

17 On levels at approximately seven-eighths, five-eighths, three-eighths and one-eighth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

18 On levels at approximately eight-ninths, seven-ninths, five-ninths, one-third and one-ninth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

19 On levels at approximately nine-tenths, seven-tenths, one-half, three-tenths and one-tenth of the over-all height of the tower, at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

19.1 On levels at approximately ten-elevenths, nine-elevenths, seven-elevenths, five-elevenths, three-elevenths and one-eleventh of the over-all height of the tower at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

19.2 On levels at approximately eleven-twelfths, three-fourths, seven-twelfths, five-twelfths, one-fourth and one-twelfth of the over-all height of the tower at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

19.3 On levels at approximately twelve-thirteenths, eleven-thirteenths, nine-thirteenths, seven-thirteenths, five-thirteenths, three-thirteenths and one-thirteenth of the over-all height of the tower at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

19.4 On levels at approximately thirteen-fourteenths, eleven-fourteenths, nine-fourteenths, one-half, five-fourteenths three-fourteenths and one-fourteenth of the over-all height of the tower at least one 116- or 125-watt lamp (A21/TS) enclosed in an aviation red obstruction light globe shall be installed on each outside corner of the structure.

20 All lighting shall be exhibited from sunset to sunrise unless otherwise specified.

②1 All lights shall burn continuously or shall be controlled by a light sensitive device adjusted so that the lights will be turned on at a north sky light intensity level of about 35 foot candles and turned off at a north sky light intensity level of about 58 foot candles.

22 During construction of an antenna structure, for which obstruction lighting is required, at least two 116- or 125-watt lamps (A21/TS) enclosed in aviation red obstruction light globes, shall be installed at the uppermost point of the structure. In addition, as the height of the structure exceeds each level at which permanent obstruction lights will be required, two similar lights shall be displayed nightly from sunset to sunrise until the permanent obstruction lights have been installed and placed in operation, and shall be positioned so as to insure unobstructed visibility of at least one of the lights at any normal angle of approach. In lieu of the above temporary warning lights, the permanent obstruction lighting fixtures may be installed and operated at each required level as each such level is exceeded in height during construction.